

U2D8_T_Review_Note

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U2D8_T_Re
view_Note

U2D8

[Unit #2 Polynomials Review \(Algebra Strand\)](#)

Warm Up:

1. **Expand and simplify:** $4y [3(2x - y) + 5xy] - 6$

$$= 4y(6x - 3y + 5xy) - 6$$
$$= 24xy - 12y^2 + 20xy^2 - 6$$

2. Terminology: (Matching)

Match each term to the correct definition.

- | | |
|--------------------------|---------------------------|
| a. distributive property | d. degree of a term |
| b. polynomial | e. degree of a polynomial |
| c. term | f. variable |
| | g. like terms |

f quantity whose value can change or vary

c an expression formed by the product of numbers and/or variables

b an algebraic expression formed by adding or subtracting terms

e the degree of the highest term

g terms that have identical variable parts

a $a(x + y) = ax + ay$

d the sum of the exponents on the variables in a term

3. A ball is dropped from a height of 25 m. The ball's height, H , in metres, after n bounces is represented by the equation $H = 25 \left(\frac{1}{2}\right)^n$.

What is the height of the ball after 4 bounces?

- a) $\frac{25}{16}$ m b) $\frac{25}{8}$ m c) $\frac{25}{4}$ m d) $\frac{25}{2}$ m

4. Which is a simplified form of this expression $\frac{x^8(x^6)}{x^4}$

- a) x^8 b) x^{10} c) x^{12} d) x^{18}

5. Which of the following is a simplified form of

$$(-2m + 3) - (5m - 6)?$$

- a) $3m - 3$ b) $3m + 9$ c) $-7m - 3$ d) $-7m + 9$

$$\begin{array}{l} (-2m + 3) + (-5m + 6) \\ \hline -2m + 3 - 5m + 6 \\ \hline = -7m + 9 \end{array}$$

POLYNOMIAL REVIEW NOTE (ALGEBRA STRAND)**Example 1:** Simplify.

$$\begin{aligned} \text{a) } (x^2)(x^5) \\ &= x^{2+5} \\ &= x^7 \end{aligned}$$

$$\begin{aligned} \text{b) } \frac{x^3}{x^{-5}} &\leftarrow \text{not on test with negative exponent} \\ &= x^{3-(-5)} \\ &= x^{3+5} \\ &= x^8 \end{aligned}$$

$$\begin{aligned} \text{c) } (x^3)^5 \\ &= x^{3(5)} \\ &= x^{15} \end{aligned}$$

$$\begin{aligned} &\frac{x^{10}}{x^4} \\ &= x^6 \end{aligned}$$

$$\begin{aligned} \text{d) } (a^3b^5)(a^6b^5)(a^4b) \\ &= a^{3+6+4} b^{5+5+1} \\ &= a^{13} b^{11} \end{aligned}$$

$$\begin{aligned} \text{e) } \frac{(3ab^2)^3}{(2b^3)^2} \\ &= \frac{(3)^3(a)(b^2)^3}{(2)^2(b^3)^2} \\ &= \frac{27a^3b^6}{4b^6} \\ &= \frac{27a^3}{4} \end{aligned}$$

$$\begin{aligned}
 \text{f) } & \frac{(-27x^2y^3)(4x^2y^3)^2}{(2x^3y)^2(9y^2)} \\
 & = \frac{-27x^2y^3(4)^2(x^2)^2(y^3)^2}{(2)^2(x^3)^2(y)^2(9)(y^2)} \\
 & = \frac{-\cancel{27}x^2y^3(\cancel{16}^4x^4y^6)}{\cancel{4}x^6y^2(\cancel{9}y^2)} \\
 & = \frac{-12x^{2+4}y^{3+6}}{x^6y^{2+2}} \quad \rightarrow \quad = \frac{-12\cancel{x^6}y^9}{\cancel{x^6}y^4} \\
 & \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad = -12y^5
 \end{aligned}$$

Example 2: Simplify.

$$\begin{aligned}
 \text{a) } & (4n^2 + 2) + (2n^2 - 1) \\
 & = \underline{4n^2} + \underline{2} + \underline{2n^2} - \underline{1} \\
 & = 6n^2 + 1
 \end{aligned}$$

$$\begin{aligned}
 \text{b) } & (5x^3 + 2x) - (-3x^3 - 4x) \\
 & = \underline{5x^3} + \underline{2x} + \underline{3x^3} + \underline{4x} \\
 & = 8x^3 + 6x
 \end{aligned}$$

$$c) (5x - 1) + (-3x + 2) - (4x - 8)$$

$$= \underline{5x} - 1 - \underline{3x} + 2 - \underline{4x} + 8$$

$$= -2x + 9$$

$$d) -(2x^2 - 5)$$

$$= -2x^2 + 5$$

$$e) 2x^2(-3x + 4)$$

$$= -6x^3 + 8x^2$$

$$f) 4(3x^2 - x + 6) - (2x^2 + 7x + 2)$$

$$= \underline{12x^2} - \underline{4x} + 24 - \underline{2x^2} - \underline{7x} - 2$$

$$= 10x^2 - 11x + 22$$

$$\begin{aligned}
 \text{g) } & 2x(3xy + 2y - 4y^2) - 3(x^2 - 3xy + 2xy^2) \\
 & = \underline{6x^2y} + \underline{4xy} - \underline{8xy^2} - \underline{3x^2} + \underline{9xy} - \underline{6xy^2} \\
 & = 6x^2y + 13xy - 14xy^2 - 3x^2
 \end{aligned}$$

$$\begin{aligned}
 \text{h) } & 3(5x - 1) - 2(3x + 5) \\
 & = \underline{15x} - \underline{3} - \underline{6x} - \underline{10} \\
 & = 9x - 13
 \end{aligned}$$

Example 3: On a multiple choice test, 2 marks are given for a correct answer and 1 mark is taken away for an incorrect answer.

a) Use let statements to define your variables

Let c, w represent the number of correct and wrong answers.

b) Write an algebraic expression to represent how a test is scored.

$$2c - w$$

c) If a student got 16 correct answers and 9 incorrect answer, what was their score? $c = 16, w = 9$

$$\begin{aligned} & 2(16) - 9 \\ & = 32 - 9 \\ & = 23 \end{aligned}$$

\therefore the student's score is 23.